

Serial No. 10/672,772
Atty. Doc. No. 2003P14907US

Amendments To The Claims:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strike through~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously present), or (not entered).

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (canceled)
2. (currently amended) A The combustor having a catalyst module comprising at least one duct with a first and second flow path, the first flow path on the inside of the duct along an inside wall thereof and the second flow path on the outside of the duct along at least one outside wall thereof, both the inside wall and outside wall of the duct being lined with a barrier layer and one or the other of the inside wall or outside wall has a catalyst coating over at least part of the barrier layer,
of Claim 1 wherein the barrier layer is a NiAl zone.
3. (original) The combustor of Claim 2 wherein the barrier containing the catalyst is less dense than the barrier on the other side of the duct wall.
4. (original) The combustor of Claim 3 wherein the barrier layer on the other side of the duct wall is approximately between 10% to 50% denser than the barrier layer containing the catalyst.
5. (currently amended) The combustor of Claim 4 wherein the barrier layer on the other side of the duct wall is up to approximately between 10% to 50% denser ~~and, preferably, 25% denser than~~ the barrier layer containing the catalyst.

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Serial No. 10/672,772

Atty. Doc. No. 2003P14907US

6. (original) The combustor of Claim 2 wherein the barrier layer that interfaces with the catalyst is porous throughout the layer.
7. (currently amended) The combustor of Claim ~~2~~⁴ wherein the barrier layer is both chemically and mechanically bonded to a substrate.
8. (currently amended) The combustor of Claim 6 wherein the barrier layer containing the catalyst also has ~~can have~~ an alumina, zirconia, titania, and/or ceria, and an inorganic bond phase coating on an outside surface that supports the catalyst.
9. (original) The combustor of Claim 7 wherein the barrier layer contains an alumina and an inorganic bond phase coating on the inside surface of the tube that becomes part of the substrate.
10. (currently amended) The combustor of Claim ~~2~~⁴ wherein the duct is a tube.
11. (canceled)
12. (currently amended) The combustor duct of Claim ~~17~~⁴ wherein the barrier layer is a NiAl zone.
13. (original) The combustor duct of Claim 12 wherein the barrier containing the catalyst is less dense than the barrier on the other surface of the duct.
14. (original) The combustor duct of Claim 12 wherein the barrier layer that interfaces with the catalyst is porous.
15. (currently amended) The combustor duct of Claim ~~17~~⁴ wherein ~~at~~^{the} diffusion barrier layer is both chemically and mechanically bonded to a substrate.

Serial No. 10/672,772**Atty. Doc. No. 2003P14907US**

16. (currently amended) The combustor duct of Claim 14 wherein ~~the~~ diffusion barrier layer underlying the catalyst has an alumina, zirconia, titania, and/or ceria, and an inorganic bond phase coating on an outside surface that interfaces with the catalyst.

17. (currently amended) ~~A The combustor tube of Claim 11~~ catalytic combustor duct having an inside surface and an outside surface with both of the inside surface and outside surface being lined with a barrier layer and one or the other of said inside surface or outside surface having a catalyst coating over or through at least part of the barrier layer,
wherein the duct is a tube.

18. (new) The combustor of Claim 5 wherein the barrier layer on the other side of the duct wall is up to approximately 25% denser than the barrier layer containing the catalyst.